C-O-N-F-I-D-E-N-T-I-A-L

20 AUGUST 73
(DATE)

MEMORANDUM FOR THE RECORD - Opinion Request [redacted] 25X1

SUBJECT: FORESTRY, Under S&T Bilateral

DUE DATE: 22AUGUST73

Preliminary US proposal 14 August '73

COMMENT:

25X1 [redacted]

USDA Waiver Letter In ERU File

25X1 [redacted]

C-O-N-F-I-D-E-N-T-I-A-L

FORESTRY Under S&T Bilateral

CONFIDENTIAL

SUBJECT: Forestry, Under S&T Bilateral

1. Following would be appreciated by the US Forest Service and SES/State:

a. Ministries responsible for each topic (institutes and individuals also, if anyone is that checked out in the field.) (comments on any or all topics appreciated)

b. List of priorities among topics - those with US gain versus those with Soviet gain and those of general interest to the US

c. Brief discription, paragraph or two, of the Soviet buaracracy involved in this field, i.e. relationship of State Committee to various ministries, interaction among them etc. (perhaps OBGI can address this question best).

2. Short answers can be taken over the phone. Longer ones

25X1

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

Washington, D.C. 20250

August 14, 1973

Mr. G. Stanley Brown
Agricultural Attache
American Embassy
Moscow, USSR

OPINION 20 AUG 73

Dear Stanley:

Enclosed are four copies of the preliminary proposals of the U.S. Forestry Team that will be visiting the USSR August 24-September 7, 1973.

We would appreciate you having the four copies of the proposals translated and delivered to Professor G. I. Vorobyov, State Committee for USSR Council of Ministers for Science and Terminology, 18 Lesteva Street, Moscow, as soon as possible. We would like to have the Committee review this material prior to the arrival of the U.S. Forestry Team.

Best regards,

25X1

Sincerely,

[redacted]

for RKA
R. KEITH ARNOLD
Deputy Chief

25X1

Enclosures

[redacted]

REPORT

to the U.S.-U.S.S.R. Joint Commission on Scientific and Technical Cooperation
(September 7, 1973)

The U.S.-U.S.S.R. Joint Working Group on Scientific and Technical Cooperation in the Field of Forestry research herewith forwards to the U.S.-U.S.S.R. Joint Commission a copy of The Results of Discussions signed at Moscow on September 7, 1973. The Appendix lists the topics and projects together with suggested work programs, which were selected for presentation to the U.S.-U.S.S.R Joint Commission.

The U.S.-U.S.S.R. Joint Working Group requests approval of the proposed topics and projects for cooperative work.

In addition, the U.S.-U.S.S.R. Joint Working Group on Forestry recommends that, under the supervision of the respective Chairmen of the American and Soviet sides of the Joint Working Group, the agencies, organizations, or enterprises cited as responsible for each of the topics be designated as coordinators for the implementation of the cooperative work programs which have been developed or which may be developed in that project area.

John R. McGuire
Chairman, US Working Group on Forestry

G. I. Vorobyov
Chairman, USSR Working Group on Forestry

of the U.S.-U.S.S.R. Joint Working Group on Scientific and Technical Cooperation in the Field of Forestry

In accordance with U.S.-U.S.S.R. agreement on Cooperation in the field of Science and Technology, signed in Moscow, May 24, 1972, the Joint Working Group on Scientific and Technical Cooperation in the Field of Forestry held a series of meetings during the period August 27--September 7, 1973. The American side was headed by J. R. McGuire, Chief, U.S. Forest Service and by G. I. Vorobyov, Chief, State Committee for U.S.S.R. Council of Ministers for Science and Technology. A listing of participants in the meeting of the Joint Working Group for both Sides is attached as Appendix 1.

The delegations of the United States Forest Service and the Ministry of Forestry of the Union of Soviet Socialist Republics (hereinafter referred to as the "Sides") discussed the intent to encourage cooperation between scientists and specialists in forestry research institutions, universities, and industrial firms and enterprises of the two countries on the basis of mutual benefit, equality and reciprocity. The forms and methods of cooperation in agricultural science and technology are those provided for in Article 3 of the Agreement of May 24, 1972, on Cooperation in the Fields of Science and Technology.

Both Sides exchanged the information on the present situation and organization of forestry science in their countries and expressed their opinions on possible scientific and technical cooperation in this field. The U.S. Members of the Joint Working Group visited state forests, collective forests and forestry research institutions in Moscow, Leningrad and Kiev.

After the exchange of opinions and wide discussions of mutual arrangements on cooperation in the field of forestry science, the U.S.-U.S.S.R. Joint Working Group on Forestry has recommended the following problem areas for cooperation.

1. Research in the field of forest fire prevention and control.
2. Research on the biology and control of forest insects.
3. Research on the biology and control of forest diseases.
4. Research on advanced logging systems.
5. Research on improved utilization of forests and forest crops.
6. Research on tree genetics and germ plasm.

The meeting reached agreement on the order of priority. A listing of projects connected with the above mentioned problem areas and specific projects is attached as Appendix 2. The list of problem areas can be extended in the future.

The Soviet Side expressed the desire that, in addition to U.S.D.A. and universities, firms and other agencies should participate in this cooperation from the U.S. Side. The U.S. Side endorsed this proposal favorably and agrees to encourage as appropriate the participation of such organizations in the U.S.-U.S.S.R. cooperation.

The Joint Agricultural Working Group agreed that the Cooperative research program should be initiated immediately after approval by the Joint Commission. Toward this goal each Side provided the other with appropriate data on scientists and institutions participating in the projects.

The U.S.-U.S.S.R. Joint Working Group on Forestry has recognized that the problems of forestry, water, and environment are closely related. In connection with this fact, it is important for Joint Commissions to coordinate and plan these problems to provide joint participation and reduce duplication in the work.

The Sides agreed to hold the next meeting of the Joint Working Group in 1974 in Washington to discuss the progress of cooperation and to consider additional proposals.

The exchange of opinions on cooperation in forestry research and the possibility to conclude the Discussion between the United States Forest Service and the Ministry of Forestry of the U.S.S.R. took place. The Sides discussed the draft report and have come to the unanimous conclusion that this report be forwarded through their respective Ministries for approval of the Joint Commission and recommend it to be signed by two ministers.

Done on the 7th of September, 1973, at Moscow in duplicate, in the English and Russian languages, both texts being authentic.

John R. McGuire	G. I. Vorobyov
Chairman, US Working Group on Forestry	Chairman, USSR Working Group on Forestry

APPENDIX I

L I S T

of participants of the meetings of the U.S.-U.S.S.R. Joint Working Group on Scientific and Technical Cooperation in the Field of Forestry.

On the American Side

John R. McGuire, Head of Delegation	- Chief, Forest Service, U.S. Department of Agriculture, Washington, D.C. 20250
R. Keith Arnold	- Deputy Chief for Research, Forest Service, U.S. Department of Agriculture, Washington, D.C. 20250
Robert W. Brandt,	- Plant Pathologist, Forest Service, U.S. Department of Agriculture, Washington, D.C. 20250
Lynn Biddison	- Assistant Regional Forester, Division of Fire and Air Management, Region 3, Forest Service, U.S. Department of Agriculture, Federal Building, 517 Gold Ave. SW., Albuquerque, New Mexico 87101
Eric Ellwood	- Dean, School of Forestry, North Carolina State University, Raleigh, North Carolina 27607
Oscar Traczewitz	- International Paper Company, 220 - E. 42nd Street, New York, New York 10017
Alexis B. Tatistcheff	- (interpreter) 53 East 96th Street New York, New York 10028

APPENDIX II

PROPOSED AREAS OF INTEREST

TOPIC

Genetics and Tree Improvement

Project Scope

Genetics research and its field application offers a method for the rapid improvement in the productivity or usefulness of most of the major North American and USSR forest trees. In both the United States and USSR there are active and expanding programs in forest genetics and tree improvement. The basics of a genetics program in both countries consists of selecting superior trees and growing the selected superior trees in a seed orchard in order to produce seeds or propagules for future planting.

The USSR in the last 15 years has accelerated their genetics and tree improvement programs to meet their need for improved planting stock. They have tested new concepts and technology. The United States is one of the leaders in forest genetics, especially in the applied phases. Each country has much to learn from the other in the fields of basic and applied forest genetics.

Technical Areas of Interest

1. Techniques for the selection, identification, and testing of superior genotypes.

2. Most effective method for the mass production of superior genotypes.

Proposed Scientists and Institutions

U.S.

Dr. William B. Critchfield, Pacific Southwest Forest and Range Experimer Station, 1960 Addison Street, P. O. Box 245, Berkeley, California 94701

Dr. Hans Nienstaedt, Forest Service, U.S. Department of Agriculture, Institute of Forest Genetics, Star Route 2, Rhinelander, Wisconsin 54501

Dr. Anthony E. Squillace, Forest Service, U.S. Department of Agriculture, Naval Stores and Timber Production Laboratory, P. O. Box 3, Olustee, Florida 32072

U.S.S.R.

Mr. I. E. Etverk
Deputy Director
Estonian Institute of Forestry
Estonian SSR. Tarta
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Professor, USSR Academy of
Science, Laboratory of Forestry
Uspenskoje, Moscow

Dr. T. P. Nekrasova
Head of Laboratory
Institute of Biology, Siberian
Dept. of USSR Academy of Sciences
630091 Novosibirsk, ul.
Frunze 11, Biologicheskii
Institut SO AN SSSR

Dr. S. J. Girgidou
Head, Dept. of Forest Tree Breeding
and Physiology, Leningrad Research
Institute of Forestry
194223 Leningrad
Institutski Prospekt 21

TOPIC

Forest Tree Seed Exchanges

Project Scope

In areas where suitable native trees for particular purposes are lacking the selection and testing of exotic trees through seed exchanges is the main activity of the genetics program. Because of its tremendous land mass and the resulting extremes of its continental climate, the USSR is the best general region in which to seek germ plasm that can survive in the midcontinent of North America.

The United States and USSR have a rich assortment of forest trees, some of which have potential value in each other's country. For example, USSR has a number of spruces and some white pines of direct interest to the United States. The USSR would be interested in testing some of the selected American Hardwoods as well as certain conifers. The two countries have had a long history of forest tree seed exchange and these exchanges could be easily expanded for mutual benefit.

Technical Areas of Interest

1. Analysis of the meteorological and ecological basis for the selection of geographic origins of seeds for exchange.

2. Most efficient techniques for screening and testing exotic germ plasm.

Proposed Scientists and Institutions

U.S.

Dr. Hans Nienstaedt
Forest Service, U. S. Department
of Agriculture
Institute of Forest Genetics
Star Route 2
Rhinelander, Wisconsin 54501

Dr. Ralph A. Read
205 Miller Hall
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U.S. (cont'd)

Dr. Peter W. Garrett
Forest Service, U. S. Department
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U.S.S.R.

Director
Nikita Botanical Garden
Yalta, Crimea

Dr. L. A. Kuprianoja
Botanical Institute
Popcv St. 2
Leningrad P-22

Director
Central Botanical Garden
All-Union Academy of Sciences
Kiev, Ukraine

Director
All-Union Research Institute of
Forestry and Forest Mechanization
Pushkino, Moscow

TOPIC

Containerized Planting and Controlled Environments

Project Scope

The process of intensive forest culture really begins when the seed are sown in a nursery, a greenhouse, or a controlled environment chamber. There is now a great deal of activity in the United States directed toward new systems of forest establishment involving production of containerized planting stock under optimum growing conditions in controlled environments.

USSR is among the World leaders in reforestation techniques. They are also conducting research on growing containerized trees under controlled environments, including plastic greenhouses. There is an opportunity to exchange materials for growing trees with enclosed root systems, as well as scientific information on performance. Both countries could benefit greatly by cooperative research in this field.

Technical Areas of Interest

1. Design and testing of materials and methods for growing trees with enclosed root systems,

2. Design and development of controlled environment facilities for optimizing the early growth of trees for forest production or environmental improvement.

Proposed Scientists and Institutions

U.S.

Dr. Richard Tinus
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Alexandria Forestry Center
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U.S. (cont'd)

Dr. William I. Stein
Pacific Northwest Forest and
Range Experiment Station
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Portland, Oregon 97208

U.S.S.R.

Dr. I. I. Haubekov
Deputy Director for Scientific Work
All-Union Research Institute of Forestry
and Mechanization of Forestry
Pushinko, Mosk. obl.
Institutskaya 15

Forest Fertilization

Project Scope

The Worldwide need to meet increasing demands for timber from a declining base of land available for timber production has accentuated the need for information on more intensive timber culture, and particularly on forest fertilization. Recent increases in the price of standing timber have made forest fertilization profitable on a greatly increased portion of our forest area. Forestry is likely to become one of the principal uses of fertilizer. There is a critical need for information on proper prescription of fertilizer needs, and on responses to fertilization.

As we go to shorter cycles with more frequent and more complete removal of the tree crop, we will need a fertility replenishment program just as in forest nurseries.

The USSR is a World leader in agro-forestry techniques, and conducts extensive research programs to determine forest fertilizer needs in the diverse forest regions of the country. In view of the diverse forest regions of the U. S. needing attention to forest fertilization, both countries could benefit by cooperative research in this area of forestry.

Technical Areas of interest

1. Techniques for diagnosing fertilizer needs of different soils and forests.

2. Most effective techniques, timing, and frequency of application.

3. Biological response and economic evaluation of the results.

4. Evaluation of environmental aspects of forest fertilization.

Proposed Scientists and Institutions

U.S.

Dr. Richard E. Miller
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of Agriculture
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U.S. (cont'd)

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U.S.S.R.

Director
All-Union Scientific Research Institute
for Agro-Forest Amelioration
Stalingrad

Dr. Haubekov
Deputy Director for Scientific Work
All-Union Research Institute of Forestry
and Mechanization of Forestry
Pushinko, Mosk. obl.
Institutskaya 15

TOPIC

Optimum Spacing and Stand Structure

Project Scope

Conventional forestry wastes a lot of growing space early in the rotation and results in appreciable quantities of limbs, broken tops, and other forest residues, much of which cannot easily be utilized. These problems can be reduced by very close control of spacing in the life of the stand and by careful attention to stand structure to optimize productivity.

Our national timber management planning activities have revealed a critical need for more accurate information on the growth and yield of managed forests in relation to stand density and structure. Preliminary estimates from gross yield tables (which include all mortality) indicate that through stand density control we might recover 20 to 50 percent more than we are getting from unmanaged stands. Other studies show that we may be able to double conventional fiber yields through use of quick-growing, sprouting hardwoods planted at close spacings and harvested at an early age.

In the USSR, it is recognized that in the problem of raising productivity an important role belongs to the optimization of stand structure and stand density. USSR silviculturists are also leaders in the study of growth effects of one species on another in mixed plantations. Both countries could benefit through cooperative study of stand density and structure relationships to growth in comparable forest types.

Technical Areas of Interest

1. Biological and economic aspects of stand density control.
2. Effect of stand structure and composition on growth of forests.
3. Creation of species mixtures to maximize growth and yield or to provide other forest benefits.
4. Maximizing fiber production through quick-growing, close-spaced tree crops on short rotations.

Proposed Scientists and Institutions in the U.S.

Mr. David Bruce, Pacific Northwest Forest and Range Experiment Station, 809 NE Sixth Avenue, P. O. Box 3141, Portland, Oregon 97208

Dr. Benee F. Swindel, Dept. of Genetics, North Carolina State University, Raleigh, North Carolina 27607

Mr. David H. Dawson, Institute of Forest Genetics, Forest Service, U. S. Department of Agriculture, Star Route 2, Rhinelander, Wisconsin 54501.

U.S.S.R.

Director
All-Union Scientific Research Institute
for Agro-Forest Amelioration
Stalingrad

Mycorrhizae of Forest Trees

Project Scope

Mycorrhizae have been studied in the United States for over 50 years. The first North American Conference on mycorrhizae was held in 1969 (USDA Forest Service Misc. Publ. 1189) with a second conference scheduled for late this summer.

Considerable effort is being devoted to identification and taxonomy of mycorrhiza-forming fungi. Special emphasis is being placed on mycorrhizae of Douglas-fir, on the hypogeous Ascomycetes, and on means for identifying mycorrhizal fungi in the absence of sporophores. This is particularly useful in laboratory investigations and field studies. This work and related studies suggest that endomycorrhizae are more significant than previously thought.

Other research centers on physiology and metabolite exchange. This research is designed to elucidate the physiological influence of the host-fungus interaction which can be limited or altered by external or internal factors.

Techniques for pure culture of the fungus and for study of mycorrhiza-forming fungi in spore free rooms are particular areas of expertise. This work permits experiments to study and understand the role and significance of mycorrhizae under carefully controlled conditions.

It is increasingly apparent that mycorrhizae act as biological deterrents to pathogenic root diseases and that nematodes may reduce these beneficial effects. Some mycorrhizae form a mechanical barrier to root pathogens; others produce antifungal and antibacterial chemicals.

We also are gaining knowledge and experience in the use of selected mycorrhiza-forming fungi to greatly increase the survival of trees planted in spoil banks where unusually high temperatures prevail and/or pH precludes mycorrhizal formation. We are using the mycorrhizal fungus Pisolithus tinctorius which is distributed worldwide, has a broad tree-host range, and is ecologically adapted to severe sites.

Technical Areas of Interest

1. Use of mycorrhizae to improve survival of trees in shelterbelts, in arid soils, and strip mines or spoil banks. We understand the Russians have millions of acres of such problem sites.

2. Identification and taxonomy of mycorrhizal fungi, both ecto- and endomycorrhizae.

3. Prevention of root diseases by mycorrhizae.

4. Physiology of mycorrhizae.

5. Techniques for inoculation of trees and soils with appropriate mycorrhiza-forming fungi.

Proposed Scientists and Institutions

U.S.

J. M. Trappe, Pacific Northwest Forest and Range Experiment Station, Forestry Sciences Laboratory, 3200 Jefferson Way, Corvallis, Oregon 97331.

D. H. Marx, Southeastern Forest Experiment Station, Forestry Sciences Laboratory, Carlton Street, Athens, Georgia 30601.

E. Hacskaylo, Northeastern Forest Experiment Station, Forest Physiology Laboratory, Headhouse 18, Range 1, Plant Industry Station, Beltsville, Maryland 20705.

J. W. Riffle, Rocky Mountain Forest and Range Experiment Station, 205 Miller Hall, East Campus, University of Nebraska, Lincoln, Nebraska 68503.

B. Zak, Pacific Northwest Forest and Range Experiment Station, Forestry Sciences Laboratory, 3200 Jefferson Way, Corvallis, Oregon 97331.

J. W. Gerdemann, University of Illinois, Urbana, Illinois 61801.

U.S.S.R.

Dr. M. Y. Zerova and Dr. S. P. Vasser, Institute of Botany, Academy of Science of the Ukraine S.S.R., Kiev (Identification and ecology of fungi in dry forest types and shelterbelts).

Dr. N. M. Shemakhanova, Institute of Microbiology, Academy of Sciences of the U.S.S.R., Moscow (Physiology of mycorrhizae and inoculation experiments).

Dr. B. P. Vasil'kov, Komarova Botanical Institute, Academy of Sciences of the U.S.S.R., Moscow (Taxonomy and ecology of mycorrhizae).

Dr. E. V. Runov, Institute of Forestry, Academy of Sciences of the U.S.S.R., Moscow (Introduction of mycorrhizae in arid steppes).

TOPIC

Mycorrhizae in Afforestation and Reforestation

Project Scope

Establishment of forest trees in arid lands as shelterbelts and on reclaimed sites such as strip mined areas or spoil banks poses major problems common to the U.S. and U.S.S.R. Forestation of such sites is difficult and costly. Mycorrhizal fungi play a significant role in the successful establishment of trees on such adverse sites.

The Russians have been actively interested in the symbiotic relationships between fungi and higher plants since they were revealed by Kamenski (1883, 1886, 1891). Considerable attention has been given to using mycorrhizal fungi in forest practices, especially in arid regions and in soils that have not supported forests.

Cooperative efforts would greatly accelerate application of present and emerging technology to solve mutual problems on sites now difficult to regenerate with forest trees and other woody plants.

Technical Areas of Interest

1. The use of mycorrhiza-forming fungi in establishment of trees in arid areas (shelterbelts) and in reclamation projects (strip mines and spoil banks).

2. Techniques for isolating mycorrhizal fungi and for inoculating trees and soils with mycorrhizal fungi.

3. Effects of inorganic and organic compounds, trace elements, pH, moisture, temperature, etc. on formation of mycorrhizae under nursery and arid soil conditions.

Proposed Scientists and Institutions

U.S.

J. M. Trappe, Pacific Northwest Forest and Range Experiment Station, Forestry Sciences Laboratory, 3200 Jefferson Way, Corvallis, Oregon 97331.

D. H. Marx, Southeastern Forest Experiment Station, Forestry Sciences Laboratory, Carlton Street, Athens, Georgia 30601.

E. Hacskaylo, Northeastern Forest Experiment Station, Forest Physiology Laboratory, Headhouse 18, Range 1, Plant Industry Station, Beltsville, Maryland 20750.

J. W. Riffle, Rocky Mountain Forest and Range Experiment Station, 205 Miller Hall, East Campus, University of Nebraska, Lincoln, Nebraska 68503.

U.S. (Cont'd.)

B. Zak, Pacific Northwest Forest and Range Experiment Station, Forestry Sciences Laboratory, 3200 Jefferson Way, Corvallis, Oregon 97331.

J. W. Gerdemann, University of Illinois, Urbana, Illinois 61801.

U.S.S.R.

Dr. M. Y. Zerova and Dr. S. P. Vasser, Institute of Botany, Academy of Science of the Ukraine S.S.R., Kiev (Identification and ecology of fungi in dry forest types and shelterbelts).

Dr. N. M. Shemakhanova, Institute of Microbiology, Academy of Sciences of the U.S.S.R., Moscow (Physiology of mycorrhizae and inoculation experiments).

Dr. B. P. Vasil'kov, Komarova Botanical Institute, Academy of Sciences of the U.S.S.R., Moscow (Taxonomy and ecology of mycorrhizae).

Dr. E. V. Runov, Institute of Forestry, Academy of Sciences of the U.S.S.R., Moscow (Introduction of mycorrhizae in arid steppes).

TOPIC

Effects of Insects and Diseases in the Dieback and Decline of Hardwood Forest Trees

Project Scope

Insects and diseases are a primary cause of the dieback and decline of all important hardwood species in the U.S. This condition, which is aggravated by selective cutting practices, is particularly serious in the Eastern and Central States. The U.S.S.R. has a similar problem.

The joint cumulative effects of insects and diseases on tree growth and condition are not well understood. Crude descriptive and predictive mathematical models have been developed for certain insect-host or for disease-host relations. But the basic mechanisms involved are not known, and no models exist for the total interrelations of the pest organisms and host tree(s).

Full accounting and understanding of the cumulative deteriorating effects of insects and diseases on hardwoods requires study of all age classes from seedling or sprout to maturity. It requires identification and quantification of the effects of different kinds of insects (bud and twig borers, defoliators, root feeders, etc.) and of different types of pathogens (root rots, stem cankers, defoliants, etc.).

Technical Areas of Interest

1. Gypsy moth - Armillaria - oak complex.
2. Tent caterpillar-disease complex of aspen.
3. Insects and diseases affecting black walnut under intensive culture.

Proposed Scientists and Institutions

U.S.

Dr. D. R. Houston, Northeastern Forest Experiment Station, Forest Service, U.S. Department of Agriculture, Hamden, Connecticut 06514.

Dr. Johnson Parker, Northeastern Forest Experiment Station, Forest Service, U.S. Department of Agriculture, Hamden, Connecticut 06514.

Dr. R. W. Campbell, Northeastern Forest Experiment Station, Forest Service, U.S. Department of Agriculture, Hamden, Connecticut 06514.

U.S. (continued)

Dr. R. C. Morris, Southern Forest Experiment Station, Forest Service, U.S. Department of Agriculture, Southern Hardwoods Laboratory, Stoneville, Mississippi 38766.

U.S.S.R.

Dr. P. M. Rafes, Laboratory of Forest Science, Academy of Sciences of the U.S.S.R., Moscow.

Dr. A. I. Vorontsov, Laboratory of Forest Science, Academy of Sciences of the U.S.S.R., Moscow.

Approved For Release 2005/04/12 : CIA-RDP79-00798A000400010002-1

Project Scope

Disease is an important factor in the population dynamics of many major insect pests of forests. The possibility of using certain pathogens for applied control was recognized many years ago, and in the last twenty years increasing effort has been directed toward developing practical, effective, and safe means of microbial control. Although all forms of microorganisms investigated thus far--bacteria, viruses, fungi, and protozoa--may have some potential use in forest insect control, the bacteria and viruses have definite advantages over the others and the work on them is further advanced.

In both the U.S. and U.S.S.R., research is now focused on the use of specific pathogens for particular major pests. There is a good opportunity now for cooperative studies, including field experiments with new formulations of Bacillus thuringiensis and with the nuclear polyhedrosis viruses of pine sawflies (Diprion sp. and Neodiprion sp.), tent caterpillars (Malacosoma sp.), the gypsy moth and related lymantrids, and other defoliators of mutual interest. Also, the Environmental Protection Agency is now finalizing the protocols and guidelines for safety evaluation of the nuclear polyhedrosis viruses as pesticides. The U.S.S.R. should be most interested in this important step in making these highly specific and efficient viruses available for operational use.

Technical Areas of Interest

1. Determination of the role of disease in regulating pest numbers in natural populations.

2. Development of promising pathogens for direct control.

Proposed Scientists and Institutions

U.S.

Dr. M. E. Martignoni, Pacific Northwest Forest and Range Experiment Station, Forestry Sciences Laboratory, 3200 Jefferson Way, Corvallis, Oregon 97331.

Dr. F. B. Lewis, Northeastern Forest Experiment Station, Forest Insect and Disease Laboratory, 151 Sanford Street, Hamden, Connecticut 06514.

Dr. C. G. Thompson, Pacific Northwest Forest and Range Experiment Station, Forestry Sciences Laboratory, 3200 Jefferson Way, Corvallis, Oregon 97331.

Dr. G. R. Stairs, Ohio State University, Columbus, Ohio 43210.

U.S.S.R.

Dr. S. M. Gershenson, Division of Molecular Biology and Genetics, Academy of Science of the Ukraine S.S.R., Kiev.

Dr. N. Fedorinchik, Laboratory for Biological Control, Institute for Plant Protection, Leningrad.

Dr. Gukasjan, Laboratory for Microbiological Control, Institute for Forest and Wood Trees, Academy of Science, Siberia S.S.R., Krasnojarsk.

Dr. V. M. Goral, Inst. Zastchity Rastenii, Vasilkovskaia 51, Kiev.

Dr. V. M. Zhdanov, Director, Institute of Virology, U.S.S.R. Academy of Medical Science, Moscow.

Approved For Release 2005/04/12 : CIA-RDP79-00798A000400010002-1

k Beetle--Root Rot Relations ; Pines

Project Scope

The incidence of bark beetles and root rots in pines is greatly influenced by individual tree condition and forest stand factors. Recent research has shown that the relationships involved are not independent and random. The time-space patterns of bark beetle and root rot occurrence are interlocked. More study and more quantitative data are needed, however, to fully describe and analyze the insect-disease relations in specific cases. More detailed information is needed also on the basic mechanisms involved.

Technical Areas of Interest

1. To achieve a better understanding of the causal relations of bark beetle-root rot complexes.

2. To develop technology to prevent or control this type of problem.

Proposed Scientists and Institutions

U.S.

Dr. C. J. DeMars, Pacific Southwest Forest and Range Experiment Station, 1960 Addison Street, P. O. Box 245, Berkeley, California 94701.

Dr. R. S. Smith, Pacific Southwest Forest and Range Experiment Station, 1960 Addison Street, P. O. Box 245, Berkeley, California 94701.

Mr. Neil J. MacGregor, Forest Service, U.S.Department of Agriculture, R-5, 630 Sansome Street, San Francisco, California 94111.

Dr. Fields W. Cobb, University of California, Berkeley, California 94720.

Dr. Alan A. Berryman, Washington State University, Pullman, Washington 99163.

USSR

Dr. S. F. Negrutski, Donetsk University, Donetsk, Ukraine.

N. I. Federov, Byelorussia Technological Institute, Sverdlov St. 12A, Minsk, Byelorussia.

I. A. Alekseev, Ukrainian Scientific Research Institute of Forest Management, Pushkinskaya ul 86, Kharkov.

TOPIC

Resistance of White Pines

Project Scope

White pine blister rust is an internationally dangerous forest disease now omnipresent throughout much of the range of fine-needled pines. An international program for testing white pine blister rust resistance has been proposed by the IUFRO Working Group on Genetic Resistance to Forest Disease and Insects. A small number of cooperators is needed from countries in or near the original Asian gene centers of the white pine-fungus system. In Russia, this high-hazard gene center is in Siberia and includes Pinus sibirica, P. Pumila, and P. koraiensis.

Technical Areas of Interest

1. Exchange of seed and/or pollen.

2. Establishment of test plantings of white pines as appropriate.

Proposed Scientists and Institutions

U.S.

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G. I. McDonald, Intermountain Forest and Range Experiment Station, Forestry Sciences Laboratory, P. O. Box 469, 1221 South Main, Moscow, Idaho 83843.

R. F. Patton, University of Wisconsin, Madison, Wisconsin 53706.

U.S.S.R.

A. N. Guseva, Institute of Forest and Wood, U.S.S.R. Academy of Sciences (Station Unknown).

E. N. Protopopova, Institute of Forest and Wood, U.S.S.R. Academy of Sciences, Siberian Branch, Prospekt Mira 53, Krasmovarsk, U.S.S.R.

M. Danilova, Maritskyi Polytechnical Institute, Maritskaya, Soviet Autonomous Republic, Yoshkar-ola, U.S.S.R.

Etiology and Chemotherapy of Vascular Wilts

Project Scope

Vascular wilts such as Dutch elm disease and oak wilt are among the most serious of the hardwood diseases. Dutch elm disease is of special importance to urban forestry while oak wilts are of importance to both urban forestry and wood production in the U.S.A. and Russia. In the U.S., vascular wilts also impose severe impact to numerous other hardwoods including maples, persimmon, and mimosa.

Cooperative studies could be made of organisms associated with wilts of trees in the U.S. and U.S.S.R. to determine their affinities. Of special interest are oak wilt fungi, whose existence in the U.S.S.R. only recently became known in the U.S.

The U.S. is on the verge of a major breakthrough in control of Dutch elm disease and oak wilt by injecting fungicides into affected trees. Russian scientists could run parallel experiments on efficacy of the treatment and search for alternative chemicals or other ways to minimize the expense of the operation.

Technical Areas of Interest

1. Etiological studies of vascular wilts.
2. Prediction of disease impact.
3. Development of controls.

Proposed Scientists and Institutions

U.S.

Dr. J. L. Kuntz, Department of Plant Pathology, University of Wisconsin, Madison, Wisconsin 53706.

U.S.S.R.

Dr. I. I. Minkevich (Address Unknown).

TOPIC

Aerial Application of Insecticides
for Forest Insect Control

Project Scope

There is urgent need for technological improvements to insure safe and efficient application of insecticides to target forest areas. Federal and state pesticide legislation and public concern generally now mandate to a large extent how, when, and where insecticidal materials may be applied aerially. Improvements in this field have not kept pace with the research and development of new materials. It is a problem that is of international concern.

Russia has long been a leader in aerial application technology, especially with dusts and aerosol sprays. Considerable attention has been given to treatment of forested areas to control particular pest insects. Both chemical and microbial materials have been tested and used operationally. The primary target pests of interest are the defoliators, but there is need for more information on materials and methods applicable to shoot and tip feeders and bark beetles, also. Improved technology is needed for protection of both softwood and hardwood forests.

Technical Areas of Interest

1. The development of insecticide formulations particularly suited for forest insect control.

2. Improved techniques of application by aircraft.

3. Reliable and precise means of detecting, measuring, and assessing insecticide deposits under forest conditions.

Proposed Scientists and Institutions

U.S.

Dr. G. P. Markin, Pacific Northwest Forest and Range Experiment Station, Forestry Sciences Laboratory, 3200 Jefferson Way, Corvallis, Oregon 97331.

Dr. B. Maksymiuk, Pacific Northwest Forest and Range Experiment Station, Forestry Sciences Laboratory, 3200 Jefferson Way, Corvallis, Oregon 97331.

Dr. J. H. Barger, Northeastern Forest Experiment Station, P. O. Box 365, Delaware, Ohio 43015.

U.S.S.R.

Dr. I. V. Tropin, Laboratory of Forest Protection, All-Union Scientific Research Institute of Forestry and Mechanization in Forestry, Moscow.

FIRE CONTROL

TOPIC

Weather Modification for Forest Fire Protection

Project Scope

Lightning is a major fire starting mechanism for large portions of the Rocky Mountain area of North America. It is perhaps the most important single ignition source for fires in the Boreal forest of the subarctic regions of both Eurasia and North America. A reduction in the frequency of lightning-caused forest fires would have major significance in both the costs of fire suppression and the losses of valuable forest resources resulting from fire. The U.S. Forest Service has conducted extensive research on lightning as a fire starting agent and has identified the important characteristics of lightning storms that ignite forest fuels. In addition, considerable work has been developed on the application of cloud seeding for lightning suppression and hypotheses have been developed relating cloud electrical properties and the relative amounts of liquid and frozen cloud droplets. Currently, the seeding prescriptions that have been developed in this program are being applied in lightning fire prevention programs over Alaska. This work which aims at modification of subarctic thunderstorms should be of great interest to the Soviet scientists. Other research involving weather modification in fire prevention relates to the use of cloud seeding for stimulating precipitation from convective clouds over or near burning forest fires. The seeding program envisioned for this application is applied to the convective columns above the fire or other seedable cumulus clouds which may result from natural atmospheric processes.

Scientists in the Soviet Union (Sumin, 1971) have conducted a number of experiments designed to induce precipitation on forest fires in Krasnoyarskaia, Tyumenskaia, and Irkutskaia Oblasts. Sumin reported that in six cases favorable results were obtained.

Similar experiments have been carried out by the United States with questionable success. The problem appears to be one of targeting more than one of inducing precipitation, the prescriptions for which are now fairly well developed for cumulus clouds. An exchange of information and technology with the Soviet scientists would be mutually beneficial.

Technical Areas of Interest

1. Cloud seeding prescription.

2. Cloud and atmospheric modeling .

3. Cloud seeding for fire suppression.

Proposed Scientists and Institutions

U.S.

Donald Fuquay, Intermountain Forest and Range Experiment Station, Northern Forest Fire Laboratory, Drawer G., Missoula, Montana 59801

R. G. Baughman, Intermountain Forest and Range Experiment Station, Northern Forest Fire Laboratory, Drawer G., Missoula, Montana 59801

USSR

Yu P. Sumin (Main Geophysical Observatory)

TOPIC

Infrared Sensing Systems for Fire Detection and Mapping

Project Scope

The early detection of forest fires is one of the key factors in effective control and damage reduction. Traditional visual detection systems which rely on the sighting of a smoke column do not always achieve detection system objectives in terms of minimum detection times. The application of the new developments in remote sensing, especially with infrared systems, appears to be especially promising in this problem area. The U.S. Forest Service has developed a bispectral infrared system which can be mounted in a high performance aircraft for use in forest fire detection and fire mapping. Fire mapping with this system has proven to be a valuable contribution to fire suppression operations especially on large fires during which the atmosphere tends to be so heavily loaded with smoke that a visual sighting and location of fire lines is next to impossible to achieve. The Forest Service system operates in the 3-4 and 8-11 micron bands.

Technical Areas of Interest

1. Development of a ground-based detection system using the same principles applied in the airborne system.

2. Development of a continuous monitoring system.

Proposed Scientists and Institutions

U.S.

Stanley N. Hirsch, Pacific Southwest Forest and Range Experiment Station, Forest Fire Laboratory, 4955 Canyon Crest Drive, P.O. Box 5007, Riverside, California 92507

Ralph Wilson, Intermountain Forest and Range Experiment Station, Northern Forest Fire Laboratory, Drawer G., Missoula, Montana 59801

USSR

V. I. Binenko
L. N. D'yachenko

TOPIC

Fire Behavior Modeling

Project Scope

One of the principal difficulties encountered in selecting a fire suppression strategy is the lack of a reliable method for predicting fire spread and behavior sufficiently far in advance to permit the deployment of fire suppression forces and equipment. The rapid advances which have taken place in the last decade in electronic computer technology and in mathematical modeling have given rise to the possibility that this problem of predicting fire behavior can now be effectively attacked.

In the United States a considerable effort has been devoted to the development of mathematical models of fire spread that can be simulated on an electronic computer. Significant advances have been made. To date linear steady state models have been successfully run, and while these models appear to explain the gross features of fire spread and behavior, they are incapable of reproducing such important phenomena as spotting and blowup. For these aspects of fire behavior it appears that nonlinear, time-dependent three dimensional models will be required. Some work is already underway in this area attempting to adapt models of atmospheric free convection to the convective motions induced by the forest fire.

We are not familiar with all of the Soviets' work in this area, however, recognizing the strong training in applied mathematics which is a part of nearly all Soviet scientific education, we suspect that they have many first class efforts underway in this area. We would be especially interested in work that they may have going on in the adaptation of convection models to the prediction of fire behavior or the development of nonlinear, time-dependent stochastic models of fire behavior.

Technical Area of Interest

1. Development of a probabilistic framework for fire behavior problem solution.

Proposed Scientists and Institutions

U.S.

Richard Rothermel, Intermountain Forest and Range Experiment Station, Northern Forest Fire Laboratory, Drawer G., Missoula, Montana 59801

Thomas Y. Palmer, Pacific Southwest Forest and Range Experiment Station, Forest Fire Laboratory, 4955 Canyon Crest Drive, P. O. Box 5007, Riverside, California 92507

USSR

G. P. Telitsyn (Far East Forestry Research Institute)

TOPIC

Fire Suppression Technology

Project Scope

In spite of the vastly improved fire prevention effort, forest fires continue to occur and there are now no foolproof methods for eradicating them entirely in the foreseeable future. Consequently, forest and wildland managers continue to require the best technology available for use in fire suppression operations.

It is obvious to everyone that both the costs and the effectiveness of a particular suppression operation will depend rather importantly on the skill and the efficiency of the initial attack effort. For this reason the U.S. Forest Service now has underway a major R&D effort to upgrade its aerial attack capability for forest fire suppression.

We feel that an especially fruitful area to explore with Soviet scientists is that of the advances they may have made in developing improved flame retardants. For this purpose, we suspect that they may have underway some high quality research in the chemistry of cellulose combustion. It might be worthwhile to inquire about their research in this area.

An additional area in which a sizeable effort is being expended is in developing a fire command and control system. The concept underlying this system development is that of adapting automatic data acquisition and processing with the techniques of decision analysis to provide a better capability for management and decision making in large fire suppression operations.

Technical Areas of Interest

1. The identification of improved flame retardants.

2. The development of better retardant delivery systems to provide optimum distribution of retardants for varying fuel types.

3. The application of helicopters in initial night attack on forest fires.

Proposed Scientists and Institutions

U.S.

Richard Rothermel, Intermountain Forest and Range Experiment Station, Northern Forest Fire Laboratory, Drawer G, Missoula, Montana 59801

Charles W. George, Intermountain Forest and Range Experiment Station, Northern Forest Fire Laboratory, Drawer G, Missoula, Montana 59801

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USSR

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FOREST UTILIZATION

TOPIC

Development of Advanced Logging Systems

Project Scope

In the last decade, new economic, social and silvicultural requirements have developed an urgent need for better logging methods. Advanced systems using balloons, helicopters and cableways show promise for better harvesting of timber from steep, mountainous areas and wetlands, marshes, and bogs.

In September of 1971, the USSR hosted a United Nations Symposium on forest operations in mountainous regions. Soviet contributions to this symposium reflected an active research and development program directed toward cable logging systems.

Technical Areas of Interest

1. Determining the capabilities of advanced logging systems and applying the knowledge gained to logging plans.

2. Studying static and dynamic characteristics of cable systems.

3. Solving problems of wire rope life in connection with cable logging systems.

4. Evaluating physical factors of topography, timber distributions, and logging systems as they relate to harvest unit designs.

5. Selecting placements of timber access roads with requirements of various logging systems and environmental impact constraints.

Proposed Scientists and Institutions

U.S.

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C. N. Mann, Pacific Northwest Forest and Range Experiment Station,
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N. M. Belaya, University of Lvov, Ukrainian SSR
V. D. Martinkhin, Byelorussian SSR
V. I. Rodinov, TSNIME, Laboratory Head, Krasnodar
F. Makarov, TSNIME, Krasnodar

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TOPIC

Lignin Chemistry

Project Scope

As is well known, lignin is the second most abundant chemical in nature. It is formed in some form in most plants. Softwoods contain 25-30 percent lignin, hardwoods 20-25 percent. Compared to its abundance, lignin is used in negligible amounts. Of greatest interest are the lignin solutions produced in chemical pulping. Perhaps 25 million tons per year are produced as a by-product, most is burned with heat recovery in the kraft process. Lignin has a high heating value, being high in carbon content (65 percent). Other current uses are in making vanillin, dispersant soaps, viscosity control in oil-well drilling, binder in animal feed pellets and briquettes, dust controller, ore flotation, emulsifiers, resin extenders, activated charcoal, dimethyl sulfoxide, and others. About 100 million pounds of lignosulfmates are sold per year. With petroleum shortages threatening, lignins along with rosins and turpentines could finally become a significant source of chemicals and the base of a viable silvichemicals industry. The current growing world-wide shortage of synthetic methanol (wood alcohol), which can be derived from lignin, could have an impact on lignin research. Basic chemical research is needed to support the possibility of chemical utilization and also to reduce disposal problems and divert the material to higher uses where possible.

Technical Areas of Interest

1. Biochemical reactions by isolated enzymes.

2. Biodegradation of lignin by micro-organisms.

Proposed Scientists and Institutions

U.S.

T. Kent Kirk, Forest Products Laboratory, P.O. Box 5130, Madison, Wisconsin 53705

William J. Connors, Forest Products Laboratory, P.O. Box 5130, Madison, Wisconsin 53705

K. V. Sarkanen, University of Washington, Seattle, Washington 98105

I. A. Pearl, Institute of Paper Chemistry, Appleton, Wisconsin 54911

John Harkin, University of Wisconsin, Madison, Wisconsin 53706

C. Schuerch, New York State University, Syracuse, New York 13210

USSR

Dr. A. M. Kasarnovsky, State Research Institute of Hydrolysis, Leningrad, USSR. (Basic structures) (He has communicated with William Connors at the Forest Products Laboratory)

USSR (Cont.)

M. I. Chudakov (Oxidized chemicals)

L. L. Sergeeva

N. N. Shorygina

N. A. Rosenberger
All Union Research Institute of Paper

Mozheiko (Anion-exchangers)

N. V. Nikitin

Odintson (Chemical reactivity)

Melnychyn (Emulsifiers)

Krasnoselov (Resins)

Mihailov (Lignins in varnishes)

Veselov (Lignosulfonates in wood construction)

TOPIC

Structural Exterior Particleboard from Forest Residues

Project Scope

There is a pressing need to reduce logging slash with minimal adverse environmental impact. Structural particleboard shows promise for using logging residues in effectively extending the timber supply and justifying the cost of slash removal. In the USSR, as in the United States, particleboard production has increased significantly in the last several years.

The particleboard industry in the USSR, and to some extent in the United States, has been dependent on technology and equipment developed in Europe, primarily Germany. Technology for harvesting timber and removal of material from the forests has been advanced in both the USSR and the United States.

Technical Areas of Interest

1. Equipment and processes for handling and preparation of forest residues.

2. Equipment and processes for manufacturing and using exterior structural particleboard.

Proposed Scientists and Institutions

U.S.

Dr. Erwin L. Schaffer, Forest Products Laboratory, P.O. Box 5130, Madison, Wisconsin 53705

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Dr. Peter Koch, Southern Forest Experiment Station, Alexandria Forestry Center, 2500 Shreveport Highway, Pineville, Louisiana 71360

Thomas Maloney, Washington State University, Pullman, Washington

USSR

TOPIC

Animal Feeds Based on Wood Processing Wastes

Project Scope

With greater affluence and a rising consumerism, there has been a great upsurge in the demand for beef in Russia. Until recently, almost all Russian beef came from dairy animals. Since 1969 beef imports have risen, exports decreased, and plans have been made to greatly expand the beef cattle industry. They are introducing feedlot systems. An American firm is building beef production facilities in Rostov and Georgia. Two hundred and twenty-eight more feedlots are planned for construction in the current five-year plan. The per capita consumption of beef in Russia is 48 pounds per year. In the U.S. it is 116 pounds per year. This is a new, rapidly expanding activity in the USSR; expansion plans are for Southern Russia and the new industrial areas in Asia--the Urals, Krasnoyarsk, Tyumen, Tomsk, and Kuzbass. Cattle raising is also thinly scattered all across Southern Siberia and the Lena River Basin. In forested areas or sawmill areas sawdust may fill a need for feed formulations. Sawdust and other (hammer milled) forest wastes (slash, small trees, etc.) can provide the needed roughage in place of hay.

In the U.S. with relatively mild treatments with alkali, ammonia, sulfur dioxide or steam, sawdust can be made to be up to 50 percent digestible. It then is almost equivalent to hay and serves as a nutrient as well as roughage and can replace corn and alfalfa. Wood pulp and wood pulp wastes fall into this category and highly purified wood pulps are 80-90 percent digestible. Approximately 80 pounds of waste cellulose fiber fines are produced for each ton of pulp produced.

Technical Areas of Interest

1. Field test and optimize sawdust-grain formulations using proven ratios of components.

2. Develop more data on the pretreatment of wood to make it more digestible.

Proposed Scientists and Institutions

U.S.

Dr. Jerome F. Saeman, Forest Products Laboratory, P.O. Box 5130, Madison, Wisconsin 53705

Dr. Merrill A. Millett, Forest Products Laboratory, P.O. Box 5130, Madison, Wisconsin 53705

Andrew J. Baker, Forest Products Laboratory, P.O. Box 5130, Madison, Wisconsin 53705

Dr. Robert R. Oltjen, Nutrition Institute, Agricultural Research Service, Beltsville, Maryland 20705

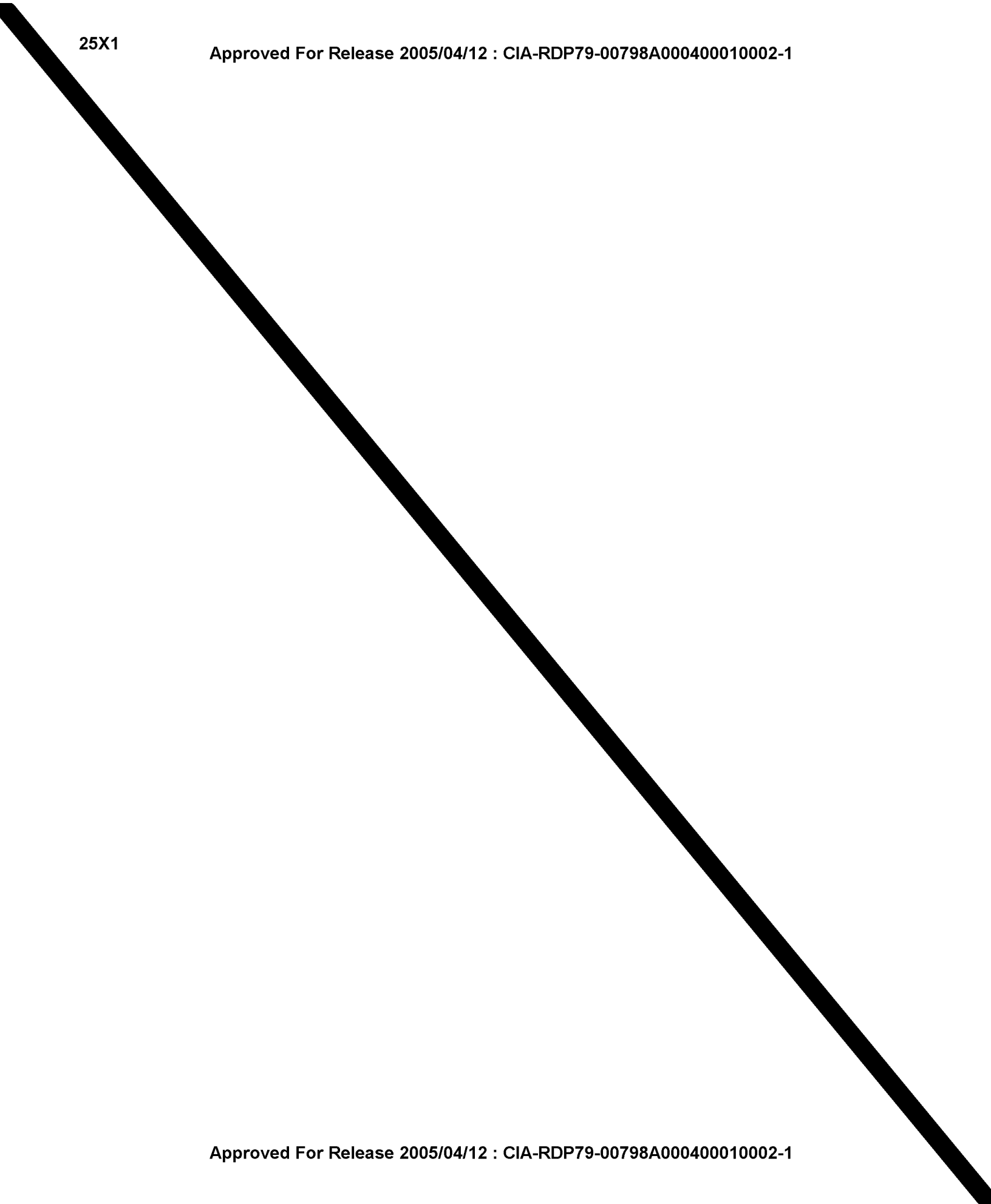
Dr. David A. Dinius, Nutrition Institute, Agricultural Research Service, Beltsville, Maryland 20705

Dr. T. Long, Pennsylvania State University, University Park, Pennsylvania 16802

USSR

Dr. S. G. Ustinov, Pedagogicheskii Institute, Leningrad USSR ("The Feeding of Calves with Alkali-Treated Hardwood Sawdust")

Animal Husbandry Research Institute, Moscow



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UNITED STATES GOVERNMENT

25X1

Memorandum

DATE: 22 August 1973

1. In response to your request for a brief statement on the USSR Forestry bureaucracy, we submit the paragraphs below. The bureaucracy is far more complex than we can describe in a few words, as the organizational affiliations of the Soviet participants already involved in the exchange indicates.

a. The forestry bureaucracy in the USSR has the same general characteristics as other Soviet bureaucracies. Organizations exist at the all-union, union republic, and oblast levels, and there are functional divisions between organizations concerned with processing, exploitation and research work.

b. There are at least four main organizations involved in the field of forestry, and there is probably some overlap and undoubtedly some bureaucratic friction. The State Committee for Forestry (headed by Georgiy Ivanovich Vorob'yev) has responsibility for exploitation of forestry resources. This includes reforestation, conservation, development of new forestry areas on land unfit for agriculture, planning of forestry work, and control over correct use of forestry reserves. The Forest Institute of the USSR Academy of Sciences and its regional affiliates are heavily involved in research on many aspects of forestry. The responsibilities of the All-Union Ministry of Pulp and Paper Industry (headed by Konstantin Ivanovich Galashin) and the Union-Republic Ministry of Timber and Wood Processing Industry (headed by Nikolai Vladimirovich Timofeyev) lie in processing/marketing aspects of forestry.

2. We suggest under the "Weather Modification for Forest Fire Protection" topic that the GUGMS (Chief Directorate of the Hydrolmeterological Service) Institute of Experimental Meterology also be contacted.

25X1

[redacted]

4. We note several places in the draft that there are references to Stalingrad, which should, of course, be changed to Volgograd. Also, on the topic "Microbial Control of Insect Defoliatiors of Forest Trees," we note that "Krasmovarsk" should be changed to Krasnoyarsk.